

REMARKS

Applicant respectfully requests reconsideration of this application as amended. Claims 1-17 are pending in the application. Claims 1-5, 7, 9-13, and 15 have been amended. Claim 17 has been added. No claims have been canceled. No new matter has been added.

Response to Objections

The Examiner has objected to the drawings for failing to comply with 37 CFR 1.84(q) for failing to use lead lines when necessary. Applicant has submitted replacement drawings for Figures 3 and 4. Figures 3 and 4 have been amended to connect elements 120 through 123 to respective detailed referred to by using lead lines.

Response to Rejections under 35 U.S.C. § 1.75(a)

The Office Action rejected claim 5 under 35 U.S.C. § 107(a) as failing to conform to particularly point out and distinctly claim the subject matter which applicant regards as their invention or discovery. Applicant respectfully submits that claim 5 has been amended to correct the typographical error of “first rectangular and creates” to “first rectangular region and creates.” Accordingly, Applicant respectfully requests the withdrawal of the objection of claim 5.

Response to Rejections under 35 U.S.C. § 102

The Office Action rejected claim 1, 2, 5, 9, 11, and 13 under 35 U.S.C. § 102(b) as being anticipated by The JPEP 200 Still Image Compression Standard, IEEE Signal Processing Magazine, Sept 2001, page 36-58 (hereinafter Skodras). Applicant respectfully requests withdrawal of these rejections because the cited reference fails to disclose all of the limitations of the claims.

Claim 1 stands rejected under 35 U.S.C. § 102(b) as being anticipated by JPEG 2000. Applicant respectfully submits that claim 1 is patentable over the cited reference because Skodras does not disclose all of the limitations of the claim. Claim 1, as amended, recites:

An image processing apparatus for hierarchically compressing and coding image data by subjecting pixel values of the image data to a discrete wavelet transform, quantization and coding for each of one or a plurality of rectangular regions into which the image data is divided, the image processing apparatus comprising:

a hierarchical coding unit to compress and code the image data in a state where the image data is divided for each hierarchical layer, to obtain compressed codes, wherein the hierarchical coding unit comprises:

a first-level coding unit to receive the image data and to create the compressed codes of a first hierarchical layer; and
a second-level coding unit to receive a sub-band of the first hierarchical layer from the first-level coding unit and to create the compressed codes of a second hierarchical layer, wherein the second hierarchical layer is a lower hierarchical layer than the first hierarchical layer; and
a distributively storing unit to distributively store the compressed codes that are divided for each hierarchical layer by the hierarchical coding unit, wherein the distributively storing unit comprises:
a first-level storing unit to store the compressed codes of the first hierarchical layer; and
a second-level storing unit to separately store the compressed codes of the second hierarchical layer from the compressed codes of the first hierarchical layer, wherein the second-level storing unit is physically separate from the first-level storing unit. (Emphasis added).

Applicant respectfully submits that claim 1 requires that the distributively storing unit includes a first-level storing unit to store the compressed codes of the first hierarchical layer, and a second-level storing unit to separately store the compressed codes of the second hierarchical layer from the compressed codes of the first hierarchical layer. The second-level storing unit is physically separate⁴ from the first-level storing unit. Skodras fails to disclose at least these limitations.

As described in Applicant's previous response, Skodras is directed to the JPEG 2000 still image compression standard. Skodras, Title. Skodras discloses a JPEG 2000 compression engine (encoder and decoder). At the encoder, the discrete transform is first applied on the source image data. The transform coefficients are then quantized and entropy coded before forming the output code stream (bit stream). The decoder is the reverse of the encoder. The code stream is first entropy decoded, dequantized, and inverse discrete transformed, thus resulting in the reconstructed image data. More specifically, the source image is decomposed into components, the image components are decomposed into rectangular tiles (the basic unit of the original/reconstructed image), and a wavelet transform is applied on each tile. The tile is decomposed into different resolution levels. Although Skodras discloses a compression engine that decomposes tiles into different resolution levels, nothing in Skodras discloses a distributive storing unit that distributively stores the compressed codes by hierarchical levels. In particular, nothing in Skodras discloses a first-level storing unit to store the first hierarchical layer and a second-level storing unit that separately stores the compressed codes of the second hierarchical

layer, where the second-level storing unit is physically separate from the first-level storing unit. As such, Skodras fails to disclose at least these limitations of the claims.

The Office action purports that Skodras discloses the limitations of the claims because the compressed codes that have already been divided for each hierarchical layer are each, as a whole, stored on each of the electronic equipment. Office action, mailed December 5, 2007, page 17. More specifically, the Examiner sets for the illustration that indicates that hierarchical layers 1, 2, ...N, are stored in Electronic Equipment 1, and Hierarchical layers 1, 2, ..., N are stored in Electronic Equipment 2, and so forth. Office action, mailed December 5, 2007, page 19. Applicant respectfully submits that claim 1 has been amended to preclude such interpretation of the claim. In particular, the second-level storing unit of claim 1 separately stores the compressed codes of the second hierarchical layer from the compressed codes of the first hierarchical layer. As such, Applicant respectfully submits that Skodras does not disclose all the limitations of the claim.

Given that the cited reference fails to disclose all of the limitations of the claim, Applicant respectfully submits that claim 1 is patentable over the cited reference. Accordingly, Applicant requests that the rejection of claim 1 under 35 U.S.C. § 102(b) be withdrawn.

Applicant respectfully submits that claims 3, 5, 9, 11, and 13 are also patentable over the cited reference for similar reasons described above with respect to claim 1. Given that claims 6 and 14 depend from claims 5 and 13, respectively, which are patentable over the cited reference, Applicant respectfully submits that claims 6 and 14 are also patentable over the cited reference. Accordingly, Applicant requests that the rejections of claims 3, 5, 9, 11, and 13 under 35 U.S.C. § 102(b) and the rejections of claims 6 and 14 under 35 U.S.C. §103(a) be withdrawn.

Accordingly, Applicant respectfully submits that the rejection under 35 U.S.C. § 102(b) has been overcome by the amendments and the remarks. Applicant submits that claims 1, 3, 5-6, 9, 11, and 13-14 as amended are now in condition for allowance and such action is earnestly solicited.

Response to Rejections under 35 U.S.C. § 103(a)

The Office Action rejected claims 2, 4, 7, 10, 12, and 15 under 35 U.S.C. § 103(a) as being unpatentable Skodras in view of Qian. Applicant respectfully requests withdrawal of these rejections because the combination of cited references does not teach or suggest all of the limitations of the claim.

Claim 2 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Skodras in view of Qian. Applicant respectfully submits that claim 2 is patentable over the combination of cited references because the combination of cited references does not teach or suggest all of the limitations of the claim. Claim 2, as amended, recites:

An image processing apparatus for hierarchically compressing and coding image data by subjecting pixel values of the image data to a discrete wavelet transform, quantization and coding for each of one or a plurality of rectangular regions into which the image data is divided, the image processing apparatus forming an electronic equipment which is coupled to a network having other electronic equipments coupled thereto, and comprising:

a hierarchical coding unit to compress and code the image data in a state where the image data is divided for each hierarchical layer, to obtain compressed codes; and

a distributively storing unit to distributively store the compressed codes for each hierarchical layer separately by hierarchical layer into a storage unit of each of the other electronic equipments. (Emphasis added).

Applicant respectfully submits that claim 2 requires a distributively storing unit to distributively store the compressed codes for each hierarchical layer separately by hierarchical layer into a storage unit of each of the other equipment electronics.

As set forth in the Office action, Skodras does not disclose the electronic equipment which is coupled to a network having other electronic equipments coupled thereto and a distributively storing unit to distributively store the compressed codes into a storage unit of each of the other electronic equipments. Office action, mailed July 13, 2007, page 8. Qian also fails to disclose this limitation.

As set forth in Applicant's previous response, Qian is directed to a hierarchical method and system for object-based audiovisual descriptive tagging of images for information retrieval, editing, and manipulation. Qian, Abstract. In particular, associating information with images is useful to enable successful identification of images and the interchange of images among different applications. Qian, col. 1, lines 18-20. Qian discloses means for generating a hierarchical data structure for the image and for associating auxiliary information with the image, and means for transmission/storage mechanism for storing the image and the hierarchical data structure. In particular, as cited by the Office action, Qian discloses the use of a memory unit, e.g., memory in an electronic camera, or in a server to store the integrated image-content and the image data itself. Qian, col. 3, lines 31-36. The hierarchical data structure contains the information in two levels, a base layer that includes only content-related information indicators,

and a second layer that includes the actual content-related information. Qian, col. 3, lines 15-20. The content-related information indicators indicate whether additional content-related information is available for a region (e.g., bounding rectangles of different image objects, as well as precise contour data). The second layer carries the actual content-related information. Qian, col. 4, lines 57-64. Although the invention of Qian is designed to work with any image compression standard, such as JPEG 2000, and an example is given in the context of an networking application, Qian only discloses initially transmitting the compressed image and the base layer of its associated content-related information, and after initial downloading, a user may view the image and may also decide to interact with the contents of the image, such as by clicking on regions or object in which the user may be interested. Upon selecting one item in the menu, which is displayed when clicked, the system will start downloading the related information stored in the second layer. Qian, col. 4, line 64 to col. 5, line 21. As such, the hierarchical data structure of Qian is used to enable object-based audiovisual descriptive tagging by allowing additional image data to be associated with the image data, not to distributively store the compressed codes *into a storage unit of each of the other electronic equipments*, as required by claim 2. Although Qian discloses a memory unit, such as a memory in an electronic camera, or in a server, Qian only discloses initially transmitting the image data and the base layer, and separately transmitting the second layer upon selection from the user in the networking application. Qian, however, fails to disclose a distributively storing unit that **distributively stores compressed codes for each hierarchical layer separately by hierarchical layer into a storage unit of each of the other electronic components**, as required by claim 2. As such, the cited combination fails to disclose all the limitations of claim 2.

Moreover, Applicant respectfully submits that the combination of cited references fails to teach or suggest a distributively storing unit to distributively store the compressed codes for each hierarchical layer *separately by hierarchical layer into a storage unit of each of the other equipment electronics*. As described above with respect to claim 1, the Office action purports that Skodras discloses the limitations of the claims because the compressed codes that have already been divided for each hierarchical layer are each, as a whole, stored on each of the electronic equipment. Office action, mailed December 5, 2007, page 17. More specifically, the Examiner sets for the illustration that indicates that hierarchical layers 1, 2, ...N, are stored in Electronic Equipment 1, and Hierarchical layers 1, 2, ..., N are stored in Electronic Equipment 2, and so forth. Office action, mailed December 5, 2007, page 19. Applicant respectfully submits

that claim 2 has been amended to preclude such interpretation of the claim. In particular, the distributively storing unit distributively stores the compressed codes for each hierarchical layer separately by hierarchical layer into a storage unit of each of the other equipment electronics. As such, Applicant respectfully submits that Skodras fails to teach or suggest at least this limitation of the claim and that Qian fails to cure this deficiency.

Given that the combination of the references fails to teach or suggest all of the limitations of claim 2, Applicant respectfully submits that claim 2 is patentable over the cited references. Accordingly, Applicant requests that the rejection of claim 2 under 35 U.S.C. § 103(a) be withdrawn.

Applicant respectfully submits that claims 4, 7, 10, 12, and 15 are also patentable over the cited reference for similar reasons described above with respect to claim 2. Given that claims 8 and 16 depend from claims 7 and 15, respectively, which are patentable over the cited reference, Applicant respectfully submits that claims 8 and 16 are also patentable over the cited reference. Accordingly, Applicant requests that the rejections of claims 2, 4, 7-8, 10, 12, and 15-16 under 35 U.S.C. §103(a) be withdrawn.

Accordingly, Applicant respectfully submits that the rejection under 35 U.S.C. § 103(a) has been overcome by the amendments and the remarks. Applicant submits that claims 2, 4, 7-8, 10, 12, and 15-16 are now in condition for allowance and such action is earnestly solicited.

Applicant respectfully submits that claim 17 is patentable over the cited references.

Claim 17, recites:

An image processing apparatus for hierarchically compressing and coding image data by subjecting pixel values of the image data to a discrete wavelet transform, quantization and coding for each of one or a plurality of rectangular regions into which the image data is divided, the image processing apparatus comprising:

a hierarchical coding unit to compress and code the image data in a state where the image data is divided for each hierarchical layer, to obtain compressed codes, wherein the hierarchical coding unit comprises:

a first-level coding unit to receive the image data and to create the compressed codes of a first hierarchical layer; and

a second-level coding unit to receive a sub-band of the first hierarchical layer from the first-level coding unit and to create the compressed codes of a second hierarchical layer, wherein the second hierarchical layer is a lower hierarchical layer than the first hierarchical layer; and

a distributively storing unit to distributively store the compressed codes that are divided for each hierarchical layer by the hierarchical coding unit, wherein the distributively storing unit comprises:

a first-level storing unit to **only receive the compressed codes of the first hierarchical layer from the first-level coding unit and to store the compressed codes of the first hierarchical layer**; and
a second-level storing unit to **only receive the compressed codes of the second hierarchical layer from the second-level coding unit and to store the compressed codes of the second hierarchical layer**.

Applicant respectfully submits that claim 17 requires that the distributively storing unit includes a first-level storing unit that only receives the compressed codes of the first hierarchical layer from the first-level coding unit and stores the compressed codes of the first hierarchical coding unit, and a second-level storing unit that only receives the compressed codes of the second hierarchical layer from the second-level coding unit and stores the compressed codes of the second hierarchical coding unit.

As described above, although Skodras discloses a compression engine that decomposes tiles into different resolution levels, nothing in Skodras discloses a distributive storing unit that distributively stores the compressed codes by hierarchical levels. In particular, nothing in Skodras discloses a first-level storing unit that only receives the compressed codes of the first hierarchical layer from the first-level coding unit and stores the first hierarchical layer and a second-level storing unit that only receives the compressed codes of the second hierarchical layer from the second-level coding unit and stores the compressed codes of the second hierarchical layer. As such, Skodras fails to disclose at least these limitations of the claims. Qian fails to cure this deficiency.

Given that the cited reference fails to disclose all of the limitations of the claim, Applicant respectfully submits that claim 17 is patentable over the cited reference.

CONCLUSION

Accordingly, Applicants respectfully submit that the objections and the rejections have been overcome by the amendments and the remarks and withdrawal of these rejections is respectfully requested. Applicants submit that Claims 1-17 as amended are in condition for allowance and such action is earnestly solicited.

If there are any additional charges, please charge Deposit Account No. 02-2666 for any fee deficiency that may be due.

Respectfully submitted,

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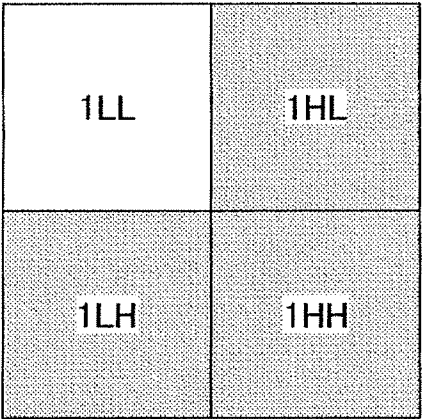
1279 Oakmead Parkway
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FIG.3 (PRIOR ART)



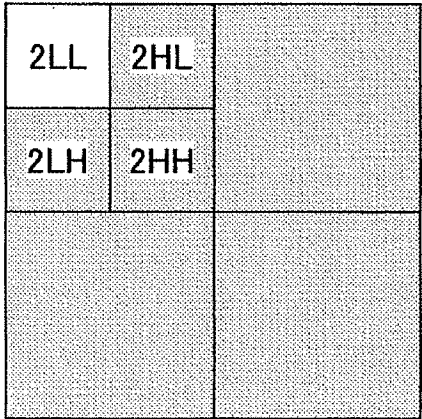
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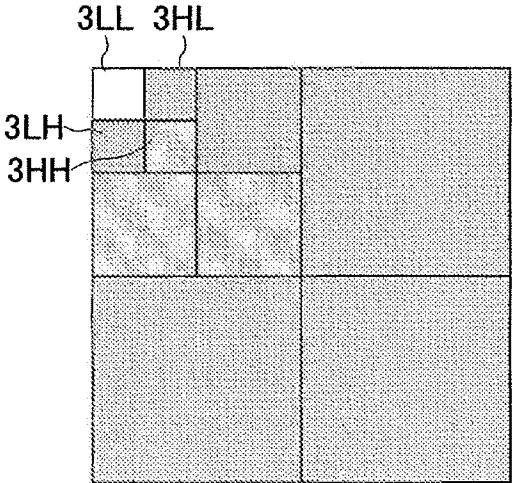
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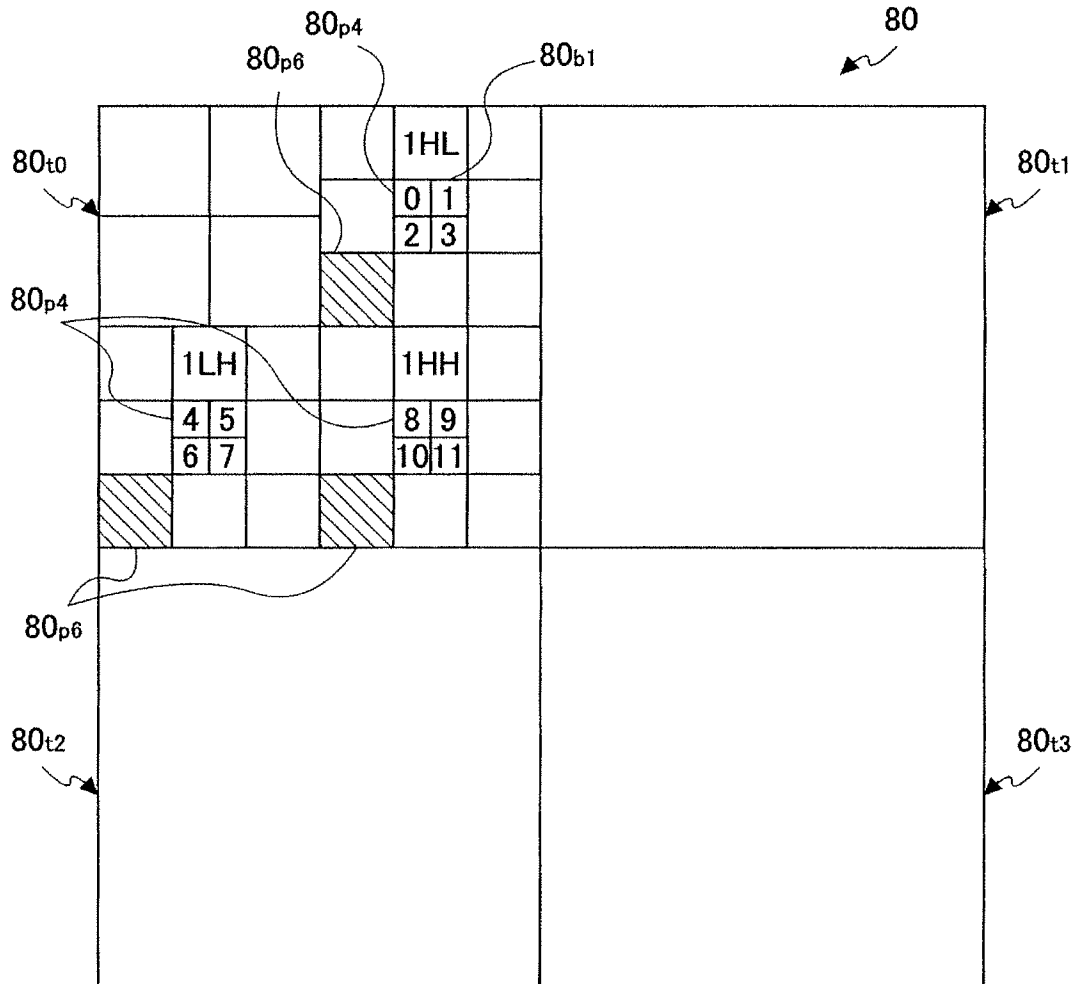
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FIG.4 (PRIOR ART)



DECOMPOSITION_LEVEL_1